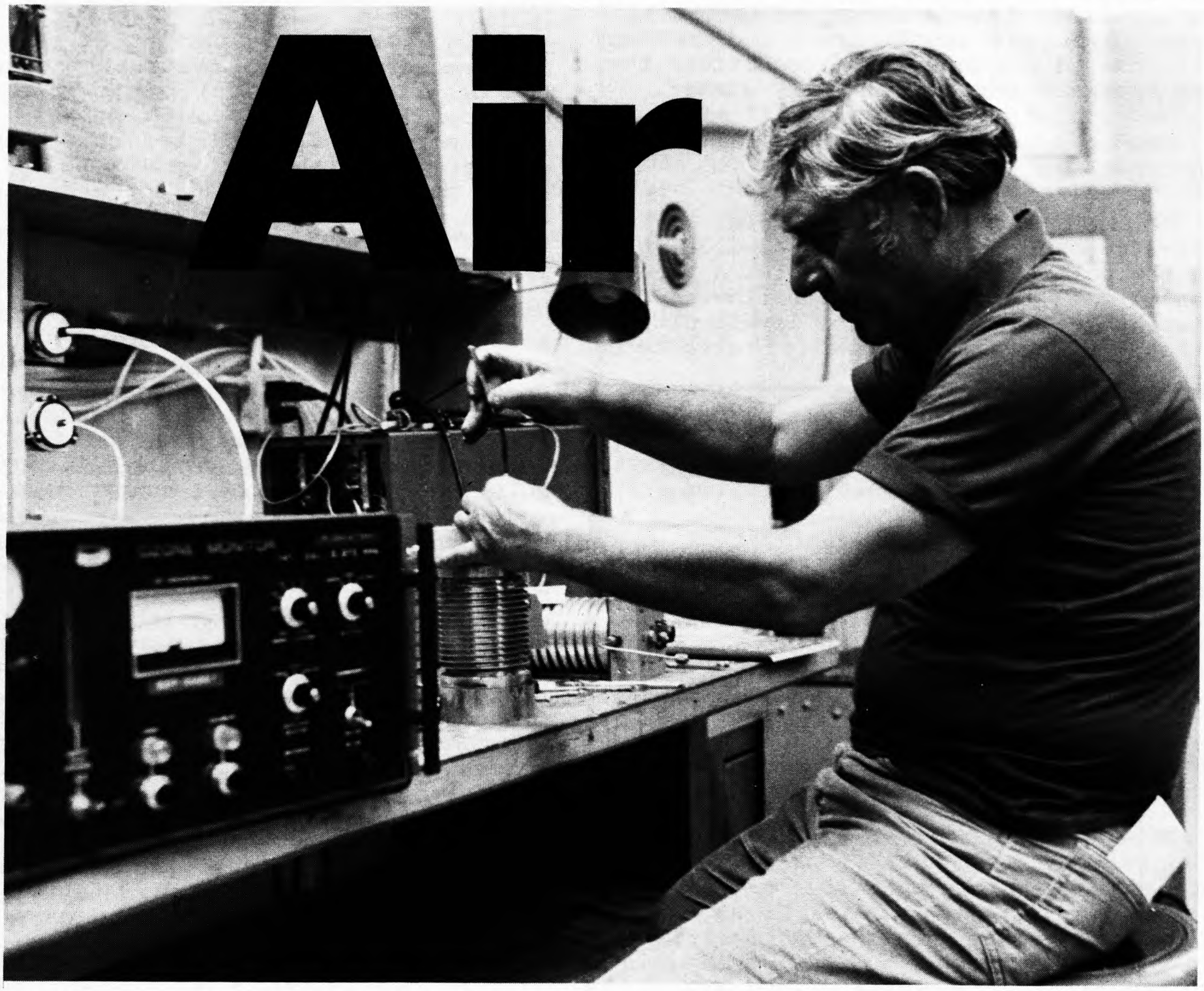
Connecticut Department of Environmental Protection

citizens' bulletin

Volume 5 Number 11 July/August 1978 $2/yr.

PERIPATETIC POLLUTANTS AND Air THE UBIQUITOUS AUTOMOBILE...



DEP's Arthur Ruggiero repairs ozone instrument.

Inside The State of the Atmosphere, p. 2; Wetlands, Conservation Groups Unite, p. 7; '78 Legislation, p. 8; Salmon Return, p. 10; Up Rainbow Fishway, p. 11; Penn Central vs. NYC, p. 13; 208 News, p. 14; Award, p. 16; Spring Water Conditions, p. 17; CAM News, p. 18; Trailside Botanizing, p. 20.

Consumer Cough-in Number One

Getting Out in the Ambient Air

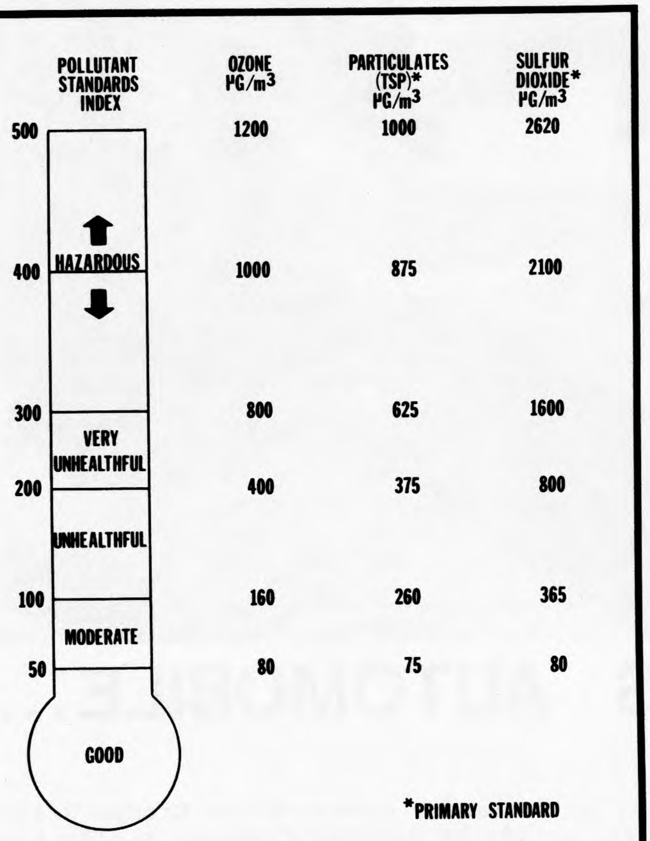
"The air quality for Monday for all towns is expected to be . . . unhealthful."

In 1977 in Connecticut about one-third of the summer days were labeled "unhealthful," according to Brian Kenny, the Assistant Director of DEP's Air Compliance Unit in charge of Engineering. Summer of 1978 promises much of the same.

Between April 15 and July 10 the Hartford County Lung Association counted forty-four unhealthful days. There were not, however, sustained several-day pollution episodes this year until early July, Kenny said, due to meteorological conditions that were somewhat unusual for early summer.

"The pollutant of concern for Monday and Tuesday, July 17 and 18, is . . . ozone."

A call any day after 3 p.m. to DEP (566-3449 or toll free 1-800-842-2220) gets you the pollutant of concern plus a prediction of air quality for the following day. On weekdays you also get the levels of pollution as recorded at twelve telemetered monitoring stations and translated into the numbers of the Pollutants Standard Index (on which 100 equals the federal standard for any given pollutant; 100-200 is described as unhealthful; 200-300 is very unhealthful; and 300-500 is described as a pollution emergency -- see figure I).



POLLUTANT STANDARDS INDEX	OZONE µG/m3	PARTICULATES (TSP)* µG/m3	SULFUR DIOXIDE* µG/m3
500	1200	1000	2620
400	1000	875	2100
300	800	625	1600
200	400	375	800
100	160	260	365
50	80	75	80

*PRIMARY STANDARD

Figure I.

The recorded voice is usually Victor Yanosy, the Air Quality Control Engineer who monitors the developing weather patterns that take half the blame when Connecticut has pollution problems.

In summer the pollutant of concern on the recorded message is usually ozone and the other photochemical oxidants that are produced concurrently with ozone. Among other monitored pollutants, suspended particulates and sulfur dioxide usually remain below problem levels; nitrogen dioxide and carbon monoxide are not measured on a continuous, real-time basis but rather subjected to after-the-fact analyses.

Ozone is decidedly seasonal, occurring mainly from April through October. It forms at temperatures above 70 degrees and is produced most readily when the temperature is above 86°, the day is clear, and the winds are between five and sixteen miles per hour. In other words, as Kenny puts it, ozone is worst on some "beautiful summer days."

Ozone(O_3) is the easiest to measure but only one of "a slew of" products in the process of photochemical reactions--a process that is not yet completely understood, according to Joseph Magyar, Assistant Director of the Air Compliance Unit in charge of Monitoring and Detection. The process, whose products get lumped together for convenience under the name of ozone, involves nitrogen oxides and the presence of hydrocarbons (most typically the products of automobile emissions) as well as sunlight and warmth. Ozone and its companion photochemical oxidants cause people respiratory problems, eye irritation, fatigue, and headaches. They are toxic to many plants and weaken rubber and fabrics.

"So wide you can't get around it . . ."

It's becoming more and more apparent, Kenny says, that ozone is a "mega-scale" pollutant. And ozone keeps turning up in surprising places.

"We first put a measuring instrument at Morris Dam expecting to measure background pollution," Kenny said. "We were surprised to measure ozone levels, out there, nearly as high as those around the cities." Ozone measuring instruments are now operating in rural and suburban locations in Eastford, Enfield, Hamden, and Groton as well as Morris. In 1977, peak ozone measurements at these locations ranged from two-and-one-half to nearly three-and-one-half times the federal health standards for ozone. (New Haven and Derby topped the 1977 ozone stakes with top readings of over four times the federal health standard.)

If leaving the city offers no guarantees that you're leaving the pollution behind, neither does leaving the State. According to a Council on Environmental Quality study of U.S. cities, in 1975 Los Angeles was the expected "shoo in" for the worst air award with 318 unhealthful days; but the nineteen runner-up cities included such surprising places as Denver (which scored 177), Albuquerque (with 150), Spokane (126), Phoenix (118), and Fairbanks, Alaska (90).

While your trusty air conditioner doesn't remove gasses like ozone or carbon monoxide, Kenny points out that cooler temperatures in an air-conditioned room would at least reduce ozone activity. Ozone levels drop quickly come sundown and cooler evening air. Until then, Kenny says, simply don't overexert.

Connecticut's successes and failures in reducing four other monitored pollutants give some clues to the "whys and wherefores" of our current pollution problem. (Specifics are available in DEP's 1977 Air Quality Summary which rolled off the presses in mid-July.)

"Welcome, sulfur dioxide."

All four of Connecticut's air quality control regions fell within federal ambient air quality standards, primary and secondary, for sulfur dioxide (which yellows leaves; eats away marble, iron and steel; irritates the respiratory tract; and damages lung tissue). Sulfur dioxide levels dropped between 1971 and 1975 and have remained fairly constant since 1975. Connecticut's success with sulfur dioxide, Kenny says, is due mainly to aggressive regulation of the sulfur levels in fuels burned in the State (to .5 percent).

The not-so-good news featuring sulfur dioxide comes from a study that provides more support for the "transport phenomena" theory. The 1977 study found sulfur dioxide levels rose during periods of sustained southwest winds from the New York-New Jersey metropolitan area. Effects ranged from five to thirty-five micrograms per cubic meter (against a federal primary standard of 80 micrograms per cubic meter). The effect decreased with radial distance from New York. "By the time you get to Putnam, you see hardly any of this effect at all," as one air compliance staff member expressed it.

Ozone:
Eating Your Spinach

Almost no spinach is grown commercially in Connecticut these days . . . because of its sensitivity to ozone.

"And if Connecticut's commercial tobacco growers had not developed resistant strains of tobacco, we'd have no tobacco crop at all," says Dr. Saul Rich of the Connecticut Agricultural Experiment Station in New Haven. "The old varieties would be completely destroyed by current ozone levels."

The same thing is true of beans and alfalfa and cucumbers -- growers now stick to ozone resistant strains.

Rich has been studying ozone's effects on plant life for over twenty-five years and had the first ozone meters in the State. He began his ozone studies in 1952, when he was faced with identifying why tobacco crops' leaves suddenly flecked, yellowed, and fell off.

"Over the years ozone has been responsible for millions of dollars in crop losses," Rich says.

"Much more insidious than the obvious plant damage," he adds, "is reduction in yield caused by ozone. While you may see no symptoms at all, you can get up to a twenty-five percent reduction in yields."

Identification of an ozone problem is not easy since it is difficult to protect a control portion of a crop without changing other conditions, and ozone leaves no chemical traces after the fact of the damage as other pollutants do. "But we've detected about a twenty-five percent loss in crops like soybeans--quite a serious problem in an era when we're trying to press our crop yields to the limits." Rich notes the particular severity of the problem in Southern California's crop-growing areas.

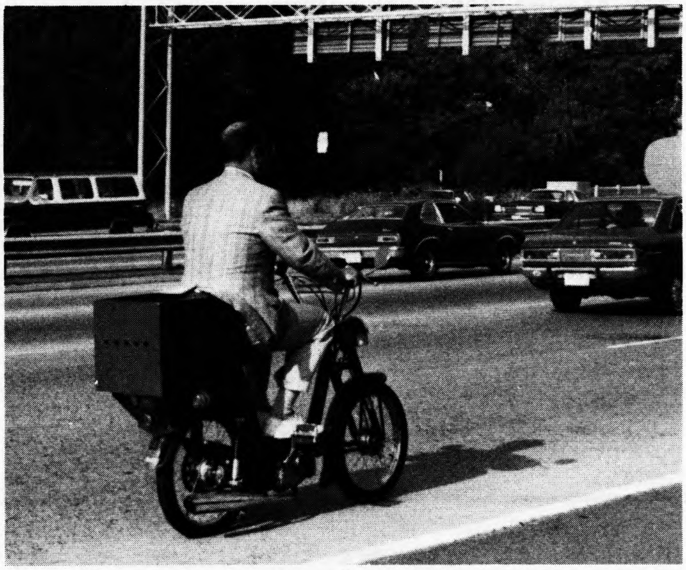
Rich also takes credit for being the first to notice that Connecticut's ozone levels are higher than those of metropolitan New York. (The hypothesis that explains this, according to DEP's Brian Kenny, is that New York's heavier layers of particulates--or dust, dirt, and smog--filter out some of the sunlight that's a vital component in the photochemical oxidation process.)

Nitrogen dioxide also falls into the qualified good news category for 1977. At twenty-four sampling sites, nitrogen dioxide (which is produced by various forms of combustion including automobile engines and which injures vegetation; deteriorates fabrics; contributes to corrosion; causes lung irritation and damage; and, along with hydrocarbons, plays a part in the photochemical oxidation process) did not exceed federal standards in 1977. The bad news is that nitrogen dioxide measured did, nevertheless, rise slightly during the period.

"True grit"

Total suspended particulates (TSPs)--solid and liquid fumes, dust, smoke particles, etc., produced by a variety of sources including automobile exhausts--showed minor increases in 1977. (Earlier, between 1970 and 1974, TSPs dropped fairly radically after industrial controls and low-sulfur fuels were inaugurated in the State in the early 1970's.) In 1977 TSPs exceeded the federal Ambient Air Quality Standards at about half of Connecticut's forty-five TSP measuring stations.

Besides the usual analysis of TSPs for sheer weight and for a list of eighteen substances such as lead, nitrates, and sulfates, a second special 1977 study analyzed these particles for size. The tiniest particles represent the greatest health hazard because they can be inhaled deepest into the respiratory tract, often carrying with them other chemical compounds also capable of causing damage. An analysis of three years of data showed a definite decrease, in the total mass, of larger particles and a corresponding increase in the more dangerous smaller particles. The hypothesis here is that improvements in combustion efficiency have increased the percentages of the tiny particles.



Few citizens have changed commuting styles. (DEP photo)

Some earlier studies also showed that, like sulfur dioxide, suspended particulates increase fifteen to two hundred percent during sustained southwest winds -- more support for the "transport theory."

"Hello, carbon monoxide."

Carbon monoxide is the product of incomplete combustion and is a very localized problem, most characteristically occurring in heavy traffic. Automobiles are the largest source -- producing over 75 percent according to the Environmental Protection Agency. Carbon monoxide disperses rapidly away from the source and comparing it to ozone, Kenny calls it a "micro-scale pollutant."

Carbon monoxide displaces oxygen in red blood cells and has significant effects on brain function and on the heart in high concentrations. (Death rates are higher for those suffering heart attacks where carbon monoxide levels are high.)

Cards or buttons that change color in a high concentration of carbon monoxide are commercially available. They are usually used in industry, but such a test might be of interest to, for example, persons living very close to busy intersections or tellers working at bank drive-in windows.

During 1977, carbon monoxide concentrations exceeded federal standards at eight of nine of Connecticut's sampling sites, all of them at major intersections in urban areas. Carbon monoxide, unlike ozone, has no seasonal preferences, occurring as readily in Christmas traffic jams as in a jam on the Fourth of July.

"Blowin' in the wind"

When they put the data all together, "How much more can Connecticut do?" is the question experts like Kenny are asking. The travels of pollutants and the undiminished automobile travel of the State's citizens have combined to produce the dearth of continuing improvement.

"Connecticut's industries," Kenny says, "have been more responsible than most other states', and DEP has been aggressive in enforcing industrial regulations.

"When we started, ninety-nine percent of the regulations were geared toward industry. Industries have taken a businesslike approach to the problems -- hiring professional staff, budgeting for pollution control equipment, and not hesitating to spend half a million dollars or more to solve their pollution problems.

(See page 6)

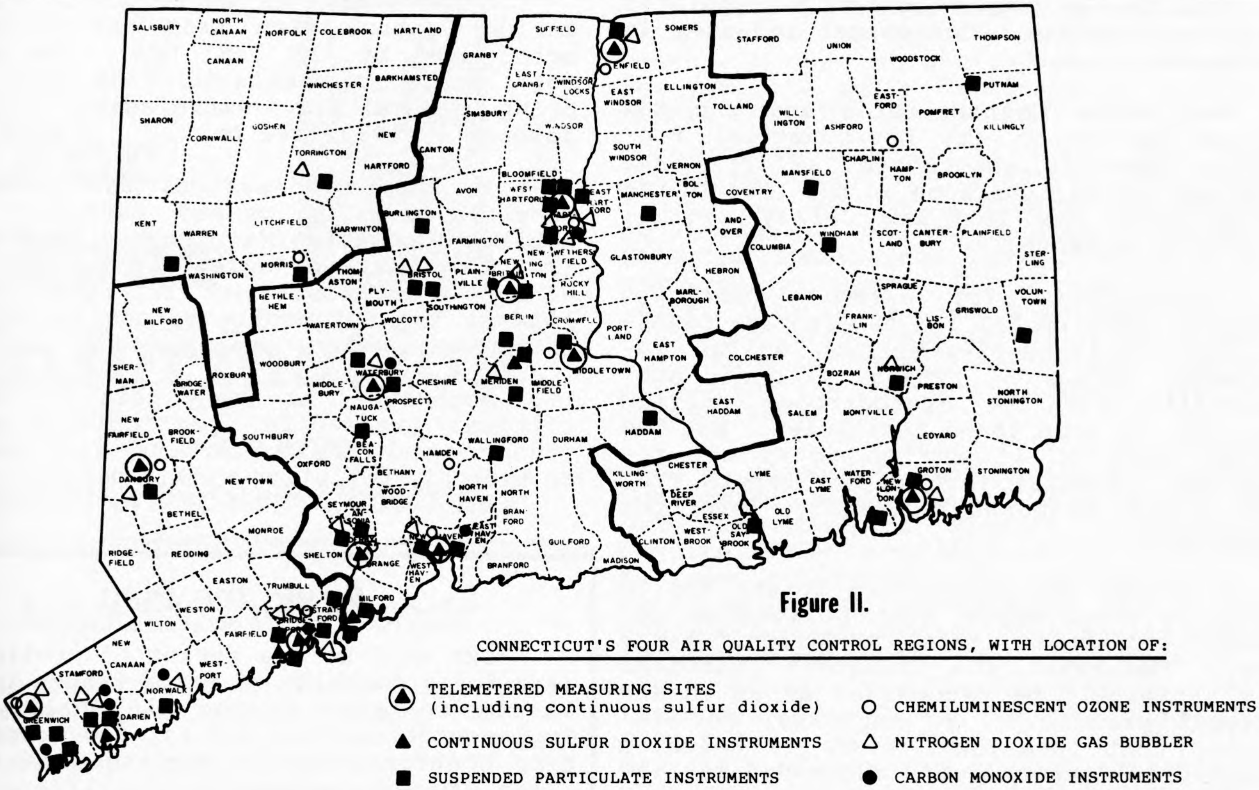


Figure II.

CONNECTICUT'S FOUR AIR QUALITY CONTROL REGIONS, WITH LOCATION OF:

- ◬ TELEMETERED MEASURING SITES (including continuous sulfur dioxide)
- ▲ CONTINUOUS SULFUR DIOXIDE INSTRUMENTS
- ■ SUSPENDED PARTICULATE INSTRUMENTS
- ○ CHEMILUMINESCENT OZONE INSTRUMENTS
- △ NITROGEN DIOXIDE GAS BUBBLER
- ● CARBON MONOXIDE INSTRUMENTS

Taking a Gallup Poll of the Air...

Connecticut's air monitoring system involves roughly 190 complicated instruments for sampling pollutants and measuring data such as temperature, wind speed and wind direction, precipitation, barometric pressure, and solar radiation. Sampling processes include glass fiber filters, flame photometry, colorimetric analysis, measurement of chemiluminescence, and infrared spectrometry. Some of the processes now being used, according to Joseph Magyar, Assistant Director of Air Compliance in charge of Monitoring and Detection, have only been developed within the last three or four years.

Servicing, maintenance, and repair of this network of equipment--mapped out in DEP's State Office Building offices on push-pin covered maps and color-keyed boards that show what's working, what needs repair, and what has been returned to the Air Compliance Unit's shop for major overhauls--involves a staff of twenty-two technical specialists, a group that includes engineers, electricians, electronics technicians, mechanics and welders. Total cost of this effort each year runs to about half a million dollars.

Siting sampling instruments is the most difficult part of the whole process, according to Magyar. This is the step that scientifically, requires "the most compromises." Carbon monoxide levels, for example, would best be measured right alongside the busiest downtown intersections. But equipment calls for power sources, bottled gas storage, controlled environments, etc. Carbon monoxide and ozone, for another example, don't occur in the same area -- so they normally are not measured at the same site. And ozone, Magyar says, would best be measured outside cities. In real life the various sites (see figure II) represent a number of compromises--in distances, in specific locations, in combinations of pollutants sampled at a site.

Most of the sites are in high concentration areas--locations near industrial centers or other major pollution sources like incinerators, near city centers, or near computer-modeled pollution "hot-spots." Monitors set far away from urban areas are now measuring "background" concentrations of pollutants as well as documenting the wide-ranging travels of various pollutants.

"Keeping everything running" is a second challenge. Wind measuring instruments, for example, get hit by lightning every once in awhile. "Altogether, Connecticut taxpayers are getting a bargain," says Magyar, from the fact that his unit has "a couple of fellows who can fix anything. Outside consultants in this field can easily take a number of days just to figure out what's wrong with a piece of equipment--at $30 to $40 per hour."

"As far as production of particulates goes, for example, Connecticut industry is now pretty clean."

But while Connecticut's and the New England Region of the Environmental Protection Agency's enforcement efforts have been aggressive, the same is not true in the metropolitan New York-New Jersey region, according to Kenny.

Connecticut, for example, now has floating roofs on all its oil storage tanks--a three-quarters-of-a-million dollar investment apiece. These "roofs" substantially cut the hydrocarbons emitted into the air from these facilities. But New Jersey, home of a vast system of oil refineries, is still letting the vapors from such tanks evaporate directly into the atmosphere.

"It took us three years to get EPA to recognize that maybe some pollutants get transported across state boundaries," Kenny says. "We think the transport phenomena will ultimately be recognized as an international problem." He suggests, for instance, that occasional rises in sulfates measured in Connecticut's suspended particulates are a result of other states' letting up on sulfur dioxide regulations and thinks that these may be blowing in from as far away as Midwestern industrial areas.

The EPA, says Kenny, estimates that the transport of pollutants from New York-New Jersey accounts for thirty percent of Connecticut's pollution problems. Kenny thinks New York-New Jersey causes more like fifty to seventy percent of the problem. (The New England Legal Foundation has filed notice of its intent to sue EPA's Region II and the Departments of Environmental Protection of the states of New York and New Jersey to demand more effective air pollution controls in these states. The Connecticut Business and Industry Association and the Connecticut Conference of Municipalities have joined in the suit, which is expected to be filed within the next several weeks.)

"Ridin' down the highway . . ."

While Connecticut's industry-caused pollution has gone down, the same has not been true for the pollution caused by automobile transportation. "When you get into transportation, the parties to be regulated are everybody, and the solutions are going to mean some radical changes in lifestyle," Kenny observes. So far no obvious changes have taken place.

Connecticut has developed a Transportation Control Plan that has never been acted upon by the U.S. EPA. The State's total State Implementation Plan (SIP) is now being revised for resubmission to EPA on January 1, 1979 (see box).

In its last session, the Connecticut General Assembly passed mandatory automobile Inspection/Maintenance legislation (see "Legislative Review") that will become effective in 1980. (We will take a further look at the automobile versus the air in a later issue.)

Meanwhile, as Kenny puts it, we face critical trade-offs, particularly between industry and transportation, if we are going to keep air pollution within desired levels.

Airing the Plan

DEP will hold a series of public meetings for discussion of major issues involved in the revision of the Air Quality State Implementation Plan and related Transportation Control Plans in keeping with federal Clean Air Act Amendments of 1977.

In a three-part effort, the Department of Transportation will be responsible for planning and coordinating multi-regional and statewide transportation systems. Regional planning agencies will act as lead agencies for transportation programs in their regions. DEP is responsible for overall revision of the SIP and will work with the above agencies to insure their transportation plans' consistency with the total SIP.

Public meetings are planned for:

TUESDAY, SEPTEMBER 12; 10 a.m.
Room 310, State Capitol, Hartford

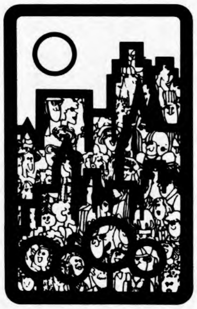
TUESDAY, SEPTEMBER 12; 7:30 p.m.
Town Hall, 338 Main St., Winsted

WEDNESDAY, SEPTEMBER 13; 7:30 p.m.
New London Agricultural Center,
562 New London Turnpike, Norwich

THURSDAY, SEPTEMBER 14; 7:30 p.m.
Common Council Chamber, City Hall
45 Lyon Terrace, Bridgeport

For further information, contact John Gove, Air Compliance Unit, DEP, Room 132, State Office Building, Hartford 06115 (566-2690).

For Your Information



By Ellen Frye,
Citizen Participation Coordinator

Association Expands

The Connecticut Association of Conservation Commissions (CACC) became the Connecticut Association of Conservation and Inland Wetland Commissions (CACIWC) at its annual meeting on May 20th. Besides expanding to include inland wetlands agencies, the Association adopted a new constitution which reorganizes the group into eight regions. It also instituted an Association newsletter, initiated a new program to provide commissions with technical assistance, and elected officers and board members.

Over the past year the Association's Board of Directors has spent many hours exploring ways of strengthening CACC's role as a clearinghouse for information and assistance for conservation commissions. Since many conservation commissions are their towns' designated inland wetland agencies and many more are either advisory groups to designated wetlands agencies or partially represented on separate wetlands agencies, the CACC Board unanimously agreed that inland wetlands agencies should become part of the Association.

The eight new conservation and inland wetland commission regions will be based on the State's eight county boundaries. The regions were set up to promote and represent the interests of local commissions by encouraging greater sensitivity to local problems throughout the state.

On June 26th, the Hartford County region adopted regional by-laws and appointed officers and board members. On July 17th the New Haven County region organized. The remaining counties are scheduled to organize next fall.

DEP has hired a CETA employee, Martina Delaney, to temporarily assist the CACIWC Board with the reorganization and the other new projects until fund raising activities permit CACIWC to become self-sufficient.

Delaney is working on the first issue of the new quarterly newsletter, a publication which will keep commissions informed about legislation, court cases, activities of other commissions, and Association programs and progress. One of the first newsletter efforts will be a CACIWC logo contest. To further the spirit of the Association, commissions will be invited to suggest a logo for the newsletter, Association stationery, etc.

A project register is also being developed to promote commission cooperation with Connecticut educational institutions that offer environmental studies programs which require students to work on actual projects relating to course work. Students will be referred to commissions which have projects but which lack professional assistance due to limited budgets. Such efforts could include natural resource inventories, environmental impact statements, open space projects, development of educational materials or programs such as wetlands commissioner training, or the laying out of nature trails.

Newly elected CACIWC officers are: President, Thomas O'Dell, Westbrook; First Vice President, Cynthia G. Wilson, Hebron; Second Vice President, Mary K. Dishaw, Granby; Secretary, Eric Stone, Bethany; Treasurer, Virginia Oldrin, Darien.

New CACIWC Directors are: Doris Hamlin, Litchfield; Frederick R. Leavenworth, Woodbury; Dr. David Schroeder, Mansfield Center; Orville Tice, Guilford; Howard Brooks, Orange; and Jack Gunther, New Canaan.

For further information about the Association, contact Ellen Frye or Martina Delaney at the State Office Building, 566-3489 or toll free 1-800-842-2220.

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DEP Citizens' Bulletin

Published eleven times a year by the Department of Environmental Protection. Yearly subscription $2.00. 2nd class postage paid at Hartford, Connecticut. Funds are also provided through a federal grant from the Office of Coastal Zone Management under the Coastal Zone Management Act of 1972. Please forward any address change immediately.

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Legislative Wrap-Up

The following 1978 Public Acts may be of interest to Bulletin readers. Much of this material is based upon a summary prepared by Laura Inouye of DEP's Planning and Coordination Section. Acts summarized as Bills in the March and April issues are not described here. "Wrap-Up" will continue next month with summaries of new Conservation and Preservation, Solid Waste Management, and Water Pollution legislation.

Air Pollution

P.A. 78-335 An Act Concerning the Control of Motor Vehicle Emissions.

This Act requires the Commissioner of the Department of Motor Vehicles (DMV), with the advice of the Commissioner of the DEP, to set up motor vehicle emissions inspection stations by January 1, 1980.

The Commissioner of DMV has several options in establishing and administering the program. He may contract with an independent firm to build and operate the inspection stations, set up state-run stations, authorize private garages to handle inspections, or select any other method to carry out the requirements of the Act.

Annual emissions inspections will be required for all gasoline powered motor vehicles manufactured after January 1, 1968, except for motorcycles, bicycles with motors attached, vehicles weighing more than 10,000 pounds, vehicles used exclusively for farming purposes and vehicles with temporary registrations, dealers' plates or repairers' plates.

Inspections will begin January 1, 1980; but compliance with established emissions standards will not be required until January 1, 1981. After January 1, 1981, motor vehicle registrations will not be renewed unless the emissions standards are met or a waiver is authorized.

New cars must be inspected and brought into compliance by the car dealer before initial sale. Any vehicle that is inspected and found to exceed emissions standards must be repaired within 30 days and will be reinspected free of charge. The initial inspection fee cannot exceed $5; and car owners will not be required to spend more than $70 for repairs each year.

There is a provision for anyone who owns or leases 25 or more vehicles to set up their own inspection stations, with the approval of DMV Commissioner. Companies using their own fleet inspection stations may also provide free inspections for their employees' cars.

Effective January 1, 1979.

P.A. 78-309 An Act Authorizing Right or Left Turns on Red Traffic Lights.

Right turns on red lights and left turns (onto a one-way street going left) on red lights will be permitted beginning July 1, 1979.

P.A. 78-50 An Act Concerning Commuter Parking Facilities Along Rail, Bus and Auto Routes. (See April Bulletin, p. 8.)

Radiation Compliance

P.A. 78-214 An Act Concerning the Development, Utilization and Regulation of Sources of Radiation.

The DEP has been appropriated $59,000 to be used for additional staff in the Radiation Control Unit to carry out an expansion of responsibilities.

These expanded responsibilities include monitoring radiation produced at nuclear plants and their surroundings, reviewing the training and education of workers at nuclear plants, representing the state in federal and state regulatory hearings, studying problems of storing high level wastes, and monitoring sources of ionizing radiation, microwave radiation and radioactive materials.

The legislative committees on the Environment and Regulated Activities and Energy are charged with making recommendations to the General Assembly for comprehensive state policies and programs for atomic energy and radiation by December 31, 1978.

Effective July 1, 1978.

Planning and Zoning

P.A. 78-314 An Act Concerning Inclusion of Energy Considerations in Local Planning and Zoning Functions.

The enabling statutes for planning and zoning commissions have been amended, specifically Section 8-2, zoning; 8-13, subdivision of land. The Act provides that planning and zoning commissions may encourage energy efficient patterns of development, the use of solar and other renewable forms of energy, and energy conservation.

P.A. 78-104 An Act Concerning Clarification of the Planning and Zoning Statutes.

The significance of this amendment, effective October 1, 1978, is explained as follows by Jack Gunther, an attorney and Chairman of the New Canaan Conservation Commission, President of the New Canaan Land Trust, and member of the Board of Directors, Connecticut Association of Conservation Commissions:

"The Connecticut Legislature recently adopted an act resolving the problems which have existed over the years with regard to the strict definitions of 'parks and playgrounds.'

"The troublesome words appear in the State Enabling Act authorizing Planning Commissions to require developers to donate open spaces in subdivisions for 'parks and playgrounds.' The difficulty was that many towns were reluctant to own land falling within these strict definitions due to the problems of supervision and maintenance and the risk of public liability suits. Local Land Conservation Trusts wished to avoid owning land designated as 'parks' for the same reasons.

"However, a good number of Planning Commissions, relying on the broad language of the 1970 decision of the Connecticut Supreme Court upholding the constitutionality of the Enabling Act, required developers to donate conservation-type land which includes such critical natural resources as wetlands, swamps, marshes, the banks of ponds and water courses, steep slopes, thick woods and densely covered fields, and where public access is provided only by footpath.

"But problems continued to exist as some Planning Commissions insisted on labeling the reserved areas as 'parks' or playgrounds' on the subdivision map. The result was that the authority to reserve open spaces in subdivisions -- a potentially productive source of open space -- was not used effectively throughout the State as reported in my Statewide Survey published in the December, 1977 issue of the Bulletin.

"Fortunately, in the face of the alarming rate at which open spaces are being developed, the Connecticut Legislature enacted Public Act No. 78-104, entitled 'An Act Concerning Clarification of the Planning and Zoning Statutes.' The new Act authorizes Planning Commissions to require developers to donate 'open spaces' in addition to 'parks and playgrounds.' The old language 'the commission may provide open spaces for parks and playgrounds' has been amended to read 'the Commission may require the provision of open spaces, parks and playgrounds.'

"The Clarification Act reaffirms the Supreme Court's interpretation of the original Enabling Act to include open spaces as a separate category and also the practice followed by a number of Planning Commissions in requiring the donation of conservation-type land. All Planning Commissions should now be encouraged to reserve badly needed natural areas for conservation purposes."

Miscellaneous

P.A. 78-232 An Act Concerning the Preservation of Connecticut Agricultural Lands.

The Act establishes an Agricultural Lands Preservation Pilot Program to be administered by the Department of Agriculture. The program will have $5 million for purchase of permanent development rights from owners of farmland. Once a farmland owner has submitted an offer to the State, and the Department of Agriculture has completed a preliminary evaluation of the offer, the DEP will be required to appraise the property to determine the value of the development rights. Progress reports will be submitted to the Governor and General Assembly by December 15, 1978 and 1979 by the Commissioner of Agriculture.

Also, detailed, statewide land use maps will be prepared by the Office of Policy and Management. The Act includes $50,000 for this purpose.

Effective May 31, 1978.

P.A. 78-359 An Act Concerning State Grants to Municipalities for Acquisition and Development of Open Space Land Use for Recreational and Conservation Purposes and for Sewer and Pollution Abatement Facilities.

Presently, the DEP is required to make grants to towns for open space land acquisition if a federal grant is also approved. The Act makes the state grants permissive and also allows state grants for development of open space land. The DEP's 1978/79 capital budget includes $4 million for acquisition and development grants. There is also a clause requiring DEP to make grants to towns for acquisition in cases where grant applications have already received both State and federal approval.

The DEP is also appropriated $30,000 for the 1978/79 fiscal year to study the State's recreation needs and disseminate information and to assist municipalities in developing and financing recreation programs, accepting grants for recreation and cooperating with State and federal agencies and local and private groups in providing and improving recreation and park services.

Combined federal and State grants to towns will be allowed for certain water pollution control projects to exceed the present 90% limit. This will allow municipalities to take advantage of increased federal grants recently made available.

Effective July 1, 1978.

Salmon: Coming Home to Connecticut River

By William Delaney, Asst. Dir., Info. & Ed.

The 1978 season has offered the greatest encouragement in over a hundred years to fishery biologists concerned with the reestablishment of the Atlantic salmon in the Connecticut River. Through July sixth 73 salmon had been captured alive -- 18 at the Holyoke Dam, and 55 at the Rainbow Dam fishway on the Connecticut River's tributary, the Farmington River. All but one of these fish were transported alive to the Berkshire National Fish Hatchery in Hartsville (just outside of Great Barrington), Massachusetts.

The Atlantic salmon is an anadromous fish, which generally spends its first two years in the fresh water of the river of its birth, migrates to the sea and spends two years feeding in north Atlantic waters and then returns to the river to spawn. Obstruction of access to the upper portions of the river by dams and other industrial development can lead to the interruption of the life cycle and the withdrawal of the species from the river. This is exactly what has occured in the Connecticut River system.

Dams

It has been over 150 years since the last major salmon run in the Connecticut River. The first dam, closing off the upper portion of the river, was constructed in 1798. By 1825, more dams and factories had been built on the lower portion of the river and the salmon runs had ended.

A restoration program was attempted in the 1870's but over-fishing and other poor management practices quickly led to the depletion of the new run. It was almost 100 years before another significant restoration effort could be made.

Restoration

The present program began in 1966. It represents a cooperative effort by the U.S. Fish and Wildlife Service and the Fish and Game Agencies of the States of Connecticut, Massachusetts, New Hampshire, and Vermont, with support from several private organizations.

Thousands of salmon smolts (two year olds) have been stocked in the Connecticut River and its tributaries since the beginning of this program. Starting in 1972, "imprint" or stock-out ponds were used to help reduce smolt mortality and to encourage the development of a homing instinct in the young fish. Fish are held in the ponds until it becomes obvious that they are ready to begin their seaward migration.

Salmon is transferred to tank truck for trip to Berkshire National Fish Hatchery (Gephard photo)

Imprint Ponds

The first ponds were constructed adjacent to the Salmon River below the Comstock Bridge in Colchester. During the past two years, much of the stocking has been done through three ponds located just above the Rainbow Dam fishway on the Farmington River. The three stock out ponds at the dam were constructed with financial assistance from the Connecticut River Watershed Council.

Cole Wilde, Chief of DEP's Fisheries Unit, noted that "the cooperation of the private sector has been vital in the conduct of the restoration program and has contributed substantially to the success we are now attaining."

Fishways

A series of modifications in the fishway at the Holyoke Dam, the earliest fishway on the Connecticut, improved passage for

(See page 13)

Shad and Salmon

Up the Farmington . . . . via Rainbow Fishway

By Stephen Gephard, Research Assistant, DEP Fisheries Unit

The fishway around the Rainbow Dam on the Farmington River in Windsor was completed in late 1975 at a cost of $750,000, paid for by the State of Connecticut, the U.S. Fish and Wildlife Service, and The Stanley Works which owns the fifty-three foot high dam and its power station. The fishway's purpose is providing passage to the upstream portions of the river for spawning shad and Atlantic salmon. This will be its third full year of operation.

The Rainbow fishway is the highest one on the East Coast and is one of the few specifically designed and managed for the passage of shad. Shad will not jump, and therefore a traditional "fish ladder" cannot be used.

The Rainbow facility is a "vertical slot fishway." There are 60 pools, each one foot higher than the one below it. A vertical opening (slot) ten inches wide extends from top to bottom of the walls between the pools. All of the water in the fishway passes through these slots. Fish do not have to jump from pool to pool; they merely swim through the slots. With each slot, they climb one foot. The pools and slots are designed so water flow is uniform for the length of the fishway while areas of low velocity and turbulence allow fish to rest.

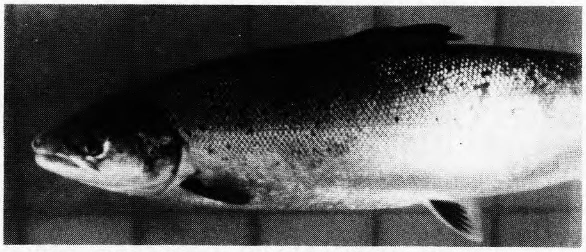
Unlike many fishlift facilities--such as the one at the Holyoke dam--the Rainbow fishway more or less runs itself. Gates and valves are regulated by float switches to automatically control the level of the water in the fishway. In most cases, fish may enter and ascend the fishway without human interference or handling.

Richard Hames, staff biologist for DEP's Fisheries Unit, oversees the fishway, and he and his research assistants man the facility to insure that it is operating correctly and to monitor fish passage. There is a counting house--an underground room with a viewing window in the side of the fishway--near the midway point of the fishway where the crew counts shad and keeps track of other fish in the fishway. Automatic time-lapse photography continuously records activities in the fishway.

Fish approach the fishway by swimming up the tailrace, a narrow channel that flows parallel to the original streambed. Most fish swim up the tailrace instead of the original streambed because during most of the year very little water passes over the dam and the streambed is nearly dry.

Once a fish has ascended the fishway, it enters the four-mile-long Rainbow Reservoir. There are thirty-two more miles of free-flowing river upstream of the reservoir.

Rainbow fishway's first adult Atlantic salmon appeared May 24, 1978 (Gephard photo)



The first Collinsville dam, at present, is a barrier to further migration by fish. There is also a second Collinsville dam one mile upstream from the first. Proposed fish passage facilities at these dams would open up over sixteen additional miles of free-flowing Farmington River as well as many miles of tributaries for fish to ascend.

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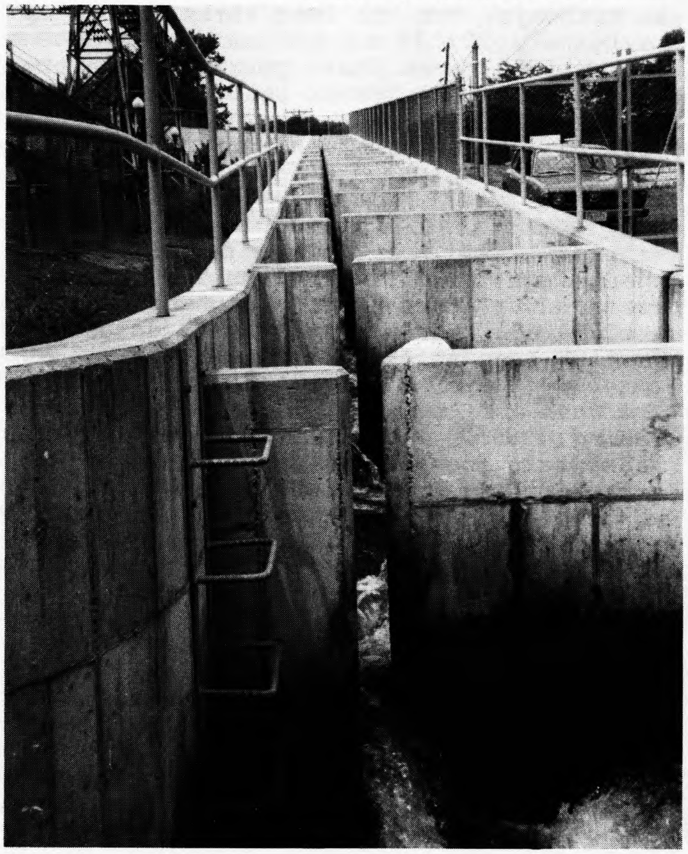
Slots let shad swim, rather than jump, up fishway around Rainbow Dam in Windsor (Gephard photo)



American Shad

Historical accounts indicate that shad originally ascended the Farmington River as far as Otis, Massachusetts. By passing shad around the Rainbow dam, DEP biologists hope to restore them to much of the upstream portion of the river. Since no shad have been in upstream waters for over 100 years, it may take time to urge large numbers up the fishway. (Shad are capable of spawning in downriver locations.)

During the spring of 1976, the fishway's first year of operation, 2,044 shad were counted swimming up the fishway. Many went back down without spawning, others died (a natural occurrence), but it is estimated that 1,189 fish successfully ascended the fishway.

In 1977, the number ascending was 1,675 and the number completing the trip was 804. This year, 2,168 shad were counted, of which 1,053 reached the impoundment above. It is not yet known where or how much spawning is taking place upstream. This will be investigated in future work.

Atlantic Salmon

The Rainbow fishway facility has been a major salmon "stock-out" location. Three concrete imprint pools are located next to the fishway. For the last three years, approximately 30,000 salmon smolts have been stocked into these pools yearly. When they are ready to begin their seaward migration, they are released into an overflow pipe that flows into the fishway and the river.

Since most salmon spend two years at sea, 1978 was the first year that substantial numbers of returning adults were expected at Rainbow. The results have surpassed the biologists' expectations. To date, 54 adult salmon have been captured in the fish trap at the counting house.

When a salmon is seen swimming past the viewing window, gates are lowered into the fishway to prevent the fish from passing farther up the fishway or going back down. When the fishway is not manned, one of the gates is left down so no salmon can ascend the fishway. The salmon is transferred from the fishway to a holding tank to await a ride to the Berkshire National Fish Hatchery in Hartsville, Massachusetts.

All the salmon will be spawned at the hatchery in order to produce Connecticut River salmon. By spawning the fish at the hatchery, away from predators and fluctuating environmental conditions, mortality can be kept lower than it is in nature.

Shad and carp pass viewing window (Gephard photo)

Resident Fishes

Many other species of fish use the fishway. These fish do not have to reach the upper waters to spawn as the salmon do, but they are responding to their natural springtime urge to swim upstream. Twenty-eight species of fish have been observed in the fishway, including many game fish such as trout and bass. Other anadromous species (fishes migrating from the sea to fresh water to spawn, such as the salmon and shad) using the fishway include the alewife, blueback herring, sea lamprey, and possibly some sea-run trout.

The Rainbow fishway is an important step in the program to restore and upgrade fisheries in Connecticut and the Connecticut River watershed. When the proposed fishway around the Leesville dam on the Salmon River, East Haddam, is completed, the two largest tributaries in the state will have facilities to capture returning salmon.

Coming Home (From page 10)

salmon and shad and has played an essential part in the success of this program. Construction of the Rainbow Dam fishway (see article that follows) has also been important to the program's progress.

Another step forward was taken in December, 1977 when Northeast Utilities took the steps necessary to initiate construction of a fishway at the Turners Falls Dam, at Turners Falls, Massachusetts. This new fishway is being constructed as a result of a settlement agreement between Western Massachusetts Electric Company (a Northeast Utilities Company) and the fish and wildlife agencies of Connecticut, Massachusetts, New Hampshire, and Vermont; the U.S. Fish and Wildlife Service; and four interveners -- Environmental Defense Fund, Massachusetts Public Interest Research Group, For Land's Sake, and Trout Unlimited. The agreement was issued, as an order, by the Federal Energy Regulatory Commission (FERC - formerly Federal Power Commission) in November, 1976.

The order called for completion of the fishways at Turners Falls Dam by May 1981, or earlier if the company's financial status met prescribed conditions. Completion of the fishways is now scheduled for May 1, 1980 according to a letter, dated November 22, 1977, from the company to the Secretary of FERC.

Progress

Further progress was made when another settlement agreement, this time between New England Power Company (NEPCO) and the same agencies and interveners, was signed by all parties and filed with FERC on December 30, 1977. This agreement calls for the completion of fishways at Vernon Dam by May 1, 1981. Completion dates for fish passage facilities at Bellows Falls and Wilder Dams are based on the return and capture of at least 30 Atlantic salmon at the Holyoke fishlift in a single year.

"Based on the progress being made in developing new facilities combined with this year's favorable results at the Rainbow Dam fishway," Wilde said, "the prospects for successful restoration of Atlantic salmon to the Connecticut River are very bright indeed."

Obstacles

The picture is not all positive, however. Fish parasites, disease and the difficulties of making their way up the river are taking their toll of the returning salmon. Parasitic copepods (sometimes described as fish lice - actually small crustaceans) and disease organisms are believed to have been picked up during the upstream migration. The fish are also subject to fungus attacks at points of abrasions and cuts and areas of scale loss suffered coming up the river.

Although a number of the captured salmon have died, it is still hoped that a significant number will survive for breeding purposes. A joint Federal-State meeting was held at the Berkshire National Fish Hatchery on June 22 to consider various treatments and techniques for dealing with the disease and parasite problems.

"Despite problems and setbacks," Cole Wilde said, "we are optimistic that 1978 will mark the first giant step in re-establishing a Connecticut River strain of Atlantic salmon. In 1977 we saw the first salmon taken by angling in the Connecticut River system in more than 100 years. By the mid 1980's, we hope to see salmon returning to the river in very significant numbers. By that time they should also have access to their historic spawning range in the upper reaches of the Connecticut River. This has been a very exciting and encouraging year for everyone connected with this program," he said.

PENN CENTRAL VS. NEW YORK CITY: ITS IMPACT ON THE "TAKING" ISSUE

By Jack Gunther, Esq., Chairman
New Canaan Conservation Commission

The recent decision of the United States Supreme Court in the Penn Central versus New York City case has significance for local planning and zoning boards and historic district commissions and similar groups concerned about whether an action is a "taking" or not.

The issue the Supreme Court addressed was preservation of the Grand Central Terminal tower as an historic landmark. In meeting the argument that the burden of implementing the city's Landmark Law would not fall equally on all landowners, the Court took the position that although the Landmark Law has a more severe impact on some landowners than on others, it does not of itself mean that the law effects a "taking" which would require the payment of compensation to the landowner. The Court's position was that legislation designed to promote the general welfare commonly burdens some more than others.

Some planning and zoning commissions have been hesitant to use desirable land-use controls due to their apprehension that such controls would be "confiscatory" and would require the payment of compensation. This new Supreme Court decision should provide reassurance where such apprehensions have existed.

208 WATER QUALITY MANAGEMENT

209 COURT ST., MIDDLETOWN, CT. 06457 347-3700
By Joseph M. Rinaldi, 208 Public Participation Assistant

Lakes Saving

The State of Connecticut has over one thousand (1,000) bodies of water which can be characterized as lakes. A 1976 report, Lakes Strategy for Connecticut, prepared by DEP, indicated that "of the two hundred fifty (250) publically owned, major, fresh water lakes in the State, aproximately one quarter have been identified as having noticeable eutrophication problems, and all need further study to evaluate problems and develop management strategies."

Preliminary information gathered and analyzed on one hundred twenty-five (125) lakes in Connecticut by the Connecticut Agricultural Experiment Station indicates that only ten percent (10%) do not exhibit eutrophication problems.

Eutrophication

Eutrophication is the scientific term for the natural aging process of a lake or pond by which the body of water will gradually fill in from decaying weeds and algae and eventually disappear. While this natural aging process can take hundreds or thousands of years, man's activities can needlessly speed it up.

An important contribution to eutrophication is the addition of nutrients, or chemicals such as phosphates and nitrates, which make the water more productive for algae and weed growth. People can dramatically increase the amounts of nutrients entering the lake, especially via household sewage, phosphate detergent use, and fertilizer runoff.

Pollution of this nature is considered to be non-point source, that is, it does not originate from a specific outlet, or source, but, instead, is diffuse. The Connecticut 208 Program, as part of its non-point source pollution study for the State, formed a Lakes Management Committee which has been studying the problems associated with lake eutrophication.

Management

The Committee recently published a report which outlines the need for a centralized lakes management program at the state level. Currently, several State agencies have some involvement with lakes, most notably the Department of Environmental Protection, the Department of Health, the Department of Transportation and the Department of Agriculture. However, very little coordination exists between these programs and consequently, communities and individuals seeking assistance with lake problems often encounter delays and confusion.

Therefore, the Committee has recommended that a permanent Office of Lakes Preservation and Restoration be established within the Department of Environmental Protection. This Office would establish and maintain a lakes classification system to set priorities for the expenditure of State and federal funds to improve lake water quality. It would also establish, administer and implement a coordinated Statewide baseline lakes sampling program.

Funding

A two step State grant program directed towards improving lake water quality could then be administered. (Step I would be a diagnostic study, and Step II would be the development and implementation of control measures.) Finally, the Office of Lakes Preservation and Restoration would provide central coordination for lake water quality efforts among the various units of DEP as well as other State agencies and serve as a clearinghouse for lake-related information.

Once a centralized lakes management program is instituted, the State would be eligible for federal Section 314 Clean Lakes Program funds. This money has been made available by the Congress to fund diagnostic studies and lake restorative programs. (To date, no lake in Connecticut has received 314 funding.) Certainly, many lakes within the State could benefit from this type of program.

The 208 Board has adopted the recommendations of its Lakes Management Committee and has forwarded them to Commissioner Pac. The Board also recommends that the DEP prepare and submit to EPA, as soon as possible, an application for a Section 314 Grant for purposes of subsidizing the Office of Lakes Preservation and Restoration administrative costs and funding of Step I grants. This course of action can and will result in better water quality for the lakes of Connecticut.

Non-point Source Pollution Proposals

The Connecticut 208 Program has completed approximately nine (9) months of an eighteen month planning program. As a special condition of the Grant Agreement between the US EPA and the 208 Board, a report has been prepared delineating preliminary management recommendations for controlling non-point source water pollution in the State. Non-point source pollution is pollution other than an industrial discharge or sewage treatment plant discharge. Common examples are storm water runoff from urban and agricultural land, leachate from septic tanks and landfills, road salt contamination, etc. The report provides EPA and all other interested parties with a status of present and possible future achievements of Connecticut's 208 Program in improving water quality.

Erosion and Sedimentation

All major disturbed areas (crop lands, roadsides, streambanks, construction areas) have been mapped, and those exhibiting a high rate of erosion have been identified. The Soil and Water Conservation Districts, utilizing technical assistance supplied by the Soil Conservation Service, are actively pursuing these land owners to enlist proper conservation practices to reduce erosion and improve water quality.

The inventory of local regulations prepared by each regional planning agency indicates that the majority of Connecticut municipalities and towns do not employ erosion and sedimentation controls for either planning and zoning or subdivision regulations. State enabling legislation has been amended to specifically allow erosion and sedimentation controls for both planning and zoning, and subdivisions.

Groundwater

The U.S. Geological Survey (USGS) is currently under contract with the Connecticut 208 Program to perform a special study pertaining to groundwater. Phase I of this study has shown that the major aquifers in Connecticut face a serious threat of contamination from sources such as spillage and seepage of fuel oil, gasoline, and other hazardous substances, leachate from road salt stockpiles, solid waste disposal areas, industrial waste disposal areas, animal wastes, fertilizers, and pesticides.

Steps can be taken now to prevent future contamination. Model aquifer protection ordinances are being formulated which, if adopted by local governments, could regulate land use over aquifers, thereby lessening the chances for groundwater pollution.

Industrial Siting

An Industrial Site Constraint Manual has been prepared to assist towns and industrial developers in locating future industrial facilities at sites most environmentally suitable for that use. To this end, maps have been produced for the entire state which depict major aquifers, drainage basins, sewered areas, etc. By utilizing the maps and Manual, industrial development can occur without contaminating ground and surface waters.

Industrial Sludge Disposal

In a highly industrialized state such as Connecticut, the disposal of sludges and manufacturing wastes can have a significant impact on water quality. A special study is being conducted in the greater Hartford, Waterbury and Bridgeport areas to determine the safety of current disposal practices.

The Study has uncovered several problems. Many industries dispose of their wastes on-site or in municipal landfills - hardly appropriate if the wastes are toxic and the disposal site is over an aquifer or near surface water. Others pay haulers to remove these wastes. Some of the haulers are unlicensed and may be disposing of wastes in unauthorized locations. Therefore, the regulation of waste haulers needs to be tightened to insure that disposal is according to State regulations.

There are other areas in which the Industrial Sludge Study intends to take action. These include amending DEP regulations, establishing recycling programs for oils and solvents, recommending the development of a major industrial disposal facility in the State, and enhancing coordination within DEP as well as between State agencies concerned with water quality management.

Lakes Management

Eutrophication is the natural aging process in a lake caused by an overabundance of nutrients and filling-in by sediments. In a natural state, the eutrophication process occurs very slowly - literally over a period of thousands of years. But man's activities can speed up the process drastically.

Under the 208 Program, two regional lake eutrophication studies are being conducted: the Lake Waramaug Special Study, and the Coventry and Columbia Lakes Special Study.

At present, Connecticut lacks a coordinated lakes management program at the state level. The 208 Program is studying the formulation of such a program to help safeguard the quality of the State's 6,000 lakes and ponds.

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Consolidation of Planning

President Carter has recently proposed a consolidation of water quality planning mechanisms which would combine the 208 Areawide Water Quality Management Planning Program and the 201 Facilities Planning Program. Currently, the 208 Board has appointed a subcommittee to study this consolidation. Two specific areas are under review: the State priority system for planning and construction of municipal wastewater treatment facilities, and the DEP Sewer Avoidance Program proposal. In both cases, data developed under the 208 Program could be incorporated in the decision making process.

Management

An inventory of local, regional, State and federal laws, regulations and institutions has been conducted which has identified several deficiencies in existing water quality protection controls. There is uncertainty of jurisdiction at all levels of government, resulting in failure of enforcement. A lack of funds, especially at the local level, means that professional technical review and law enforcement may never occur. Finally, some agencies simply disregard the enforcement of laws and regulations for various reasons.

To correct these situations, the 208 Program has made several preliminary recommendations:

1. A comprehensive training program for local board, agency, and commission members is essential.

2. Interagency coordination should be improved to clarify bounds of jurisdiction.

3. Subsidies to local regulatory bodies should be increased to enable professional review and enforcement of regulations to take place.

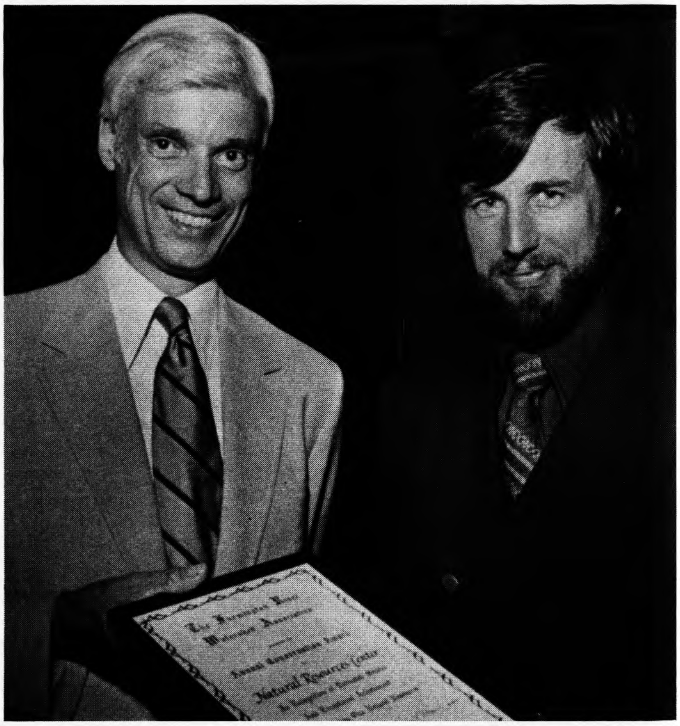
Natural Resources Center Gets Award

At its annual meeting on June seventh, the Farmington River Watershed Association (FRWA) presented the Department of Environmental Protection's Natural Resources Center and Natural Resources Center Director Dr. Hugo F. Thomas with its Conservation Awards. The awards, presented by the Association's outgoing president, Hiram Maxim III, were given in recognition of the Natural Resources Center's "dedicated service and achievements in conserving the State's natural resources." Maxim expressed particular appreciation for the assistance and support the Center has given the FRWA.

According to FRWA Executive Director Roger Seamans, the awards recognized the services of and expressed the FRWA's thanks to Thomas and "a whole group of people within the Natural Resources Center who have acted as resource persons on questions of land use and natural systems, who have helped us prepare sub-drainage maps for eighteen of the towns in the FRWA, and who have contributed their professional help to FRWA workshops and meetings and programs for public officials.

"We have always felt free," said Seamans, "to call upon Hugo to have someone from his unit come and give us the expertise that lets people go home from our meetings and workshops with meaningful information rather than just hearing some rhetoric."

During its six years the Natural Resources Center has attempted to centralize natural resources inventories for Connecticut's local users, to disseminate them, and to aid in their proper use. "It's difficult," Thomas says, "for us to evaluate user response, and occasions such as this one give us a better feeling for whether, in fact, we are satisfying the users and give us confidence that we are responding to real community needs rather than just to what we think the needs are."



Richard Hyde, DEP Principal Environmental Analyst, accepts FRWA award to Natural Resources Center from FRWA president Hiram Maxim III (Bristol Press photo)

Water Resources Conditions For Spring 1978

Streamflow

Average monthly streamflow for the period was within the normal range for March and April and above the normal range for May. Streamflow for May was 150 percent of median with western Connecticut reporting the 2nd highest of historical record and in southeastern Connecticut the highest of measured record.

Reservoirs

Reservoirs of the four principal municipal systems contained 100 percent of usable capacity at the end of each of the three months. Usable contents were 17 percent above average for end of March, four percent above average for end of April and three percent above average for end of May.

Groundwater

In March, groundwater levels rose seasonally, with those in eastern Connecticut being mostly above normal and in western Connecticut within the normal range. Three out of fourteen wells had record high levels for March.

In April, groundwater levels largely declined, but they remained mostly above average for the month and above levels of last year.

In May, groundwater levels generally declined, but they remained generally above average. More than half of the levels in the key observation wells were above the levels of last May. The levels in the key observation wells were in the normal range in north-central and northeastern Connecticut and in the high range elsewhere in Connecticut. If rainfall is above normal in June, water levels will continue to be mostly in the high range.

Summary taken from "Water Resources Conditions in Connecticut," prepared by the U.S. Geological Survey in Cooperation with the Department of Environmental Protection.

* * *

▨ *ABOVE NORMAL*

Within the highest 25 percent of record for this month.

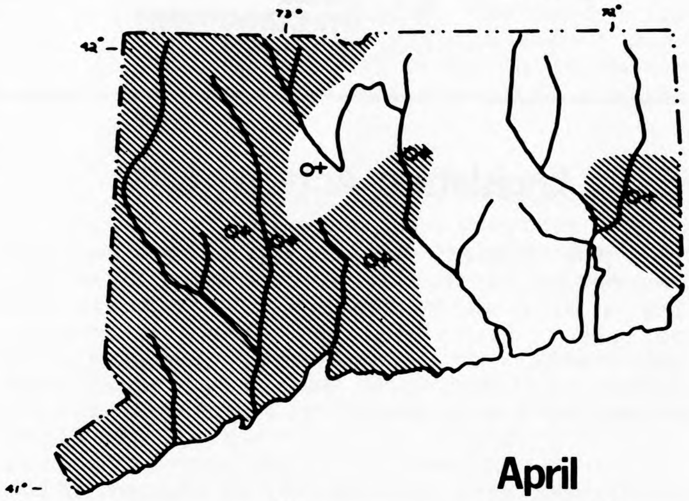
☐ *NORMAL RANGE*

Between the highest and lowest 25 percent of record for this month.

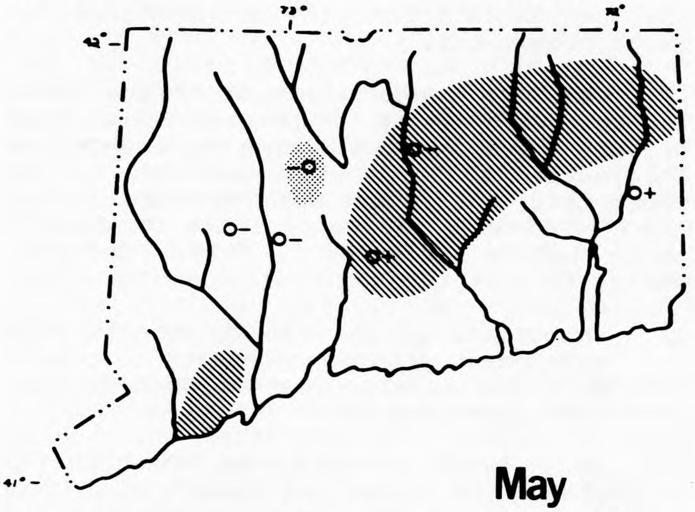
░ *BELOW NORMAL*

Within the lowest 25 percent of record for this month.

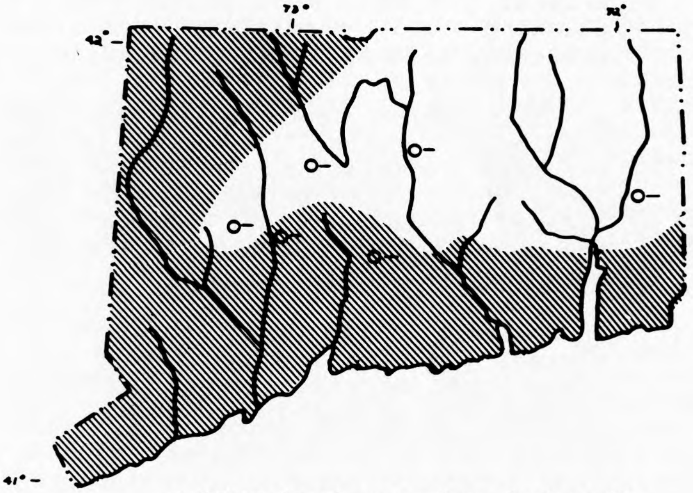
March



April



May



+ Water level rose since last month.
- Water level fell since last month.

Map based on 6 long-term observation wells (with at least 20 years of record) and 5 others. Elsewhere conditions are generalized.

coastal
area
management
71 capitol avenue hartford conn. 06115

CAM NEWS

Legislature Acts on CAM

The General Assembly has endorsed the concept of coastal area management by adopting a bill which contains CAM's goals and policies. House Bill 5547, "An Act Concerning Coastal Area Management," was passed by both the House and Senate in April and signed by the governor on May 23.

In addition to the goals and policies of coastal area management, as stated in the proposed legislation, the act contains two major provisions.

CAM, "in consultation with" the chief elected officials of the coastal towns, must prepare a report containing more detailed information on how the program will be implemented. The report will be submitted to the Environment and General Law Committees on or before September 1, 1978. Specifically, it will include the following:

1) an outline of all the components of a management program necessary to comply with the federal Coastal Zone Management (CZM) Act;
2) an analysis of the extent to which the state, in order to comply with the federal CZM Act, must participate in planning and regulatory decisions presently made by local agencies;
3) a description and definition of "national interest," as used in the proposed legislation, including projects which could potentially be considered "in the national interest" and how such projects could be accommodated in the coastal area;
4) an analysis of the extent to which municipal planning and regulatory programs would be strengthened, modified or otherwise affected by a program complying with the CZM Act;
5) guidelines for the implementation of a coastal management program, including performance guidelines and a performance evaluation procedure for assessing the impact of activities in the coastal area;
6) a model of a municipal coastal program, to illustrate a program's components;
7) representative examples of regulations for special management areas and an estimate of the total acreage which might be designated as such areas by the state or towns; and
8) suggestions for the use and distribution of state and federal coastal management funds.

The new act also establishes an interim study committee of the legislature with which CAM will work on developing more detailed legislative proposals for next year. On or before January 1, 1979, the study committee will submit recommendations for coastal management legislation to the General Assembly. These legislative recommendations, too, must be prepared in consultation with the chief elected officials of the coastal towns.

The thirteen members of the interim study committee on Coastal Area Management are State Senators James Murphy, Louis Cutillo, and George Gunther; and State Representatives John Anderson, George Ritter, Janet Polinsky, Linda Emmons, Julie Belaga, Thom Serrani, Rufus Allyn, Robert Frankel, Clarice Osiecki, and David Dodes.

The bill that was passed is quite different from the proposed legislation which was originally submitted by the CAM Advisory Board. Just briefly, why?

Despite the substantial support expressed by numerous citizens, town officials and organizations for passage of the bill as it was submitted, many others wanted more time to consider the legislation and its effect on Connecticut. To some it was unclear how the management system would work and what its relationship to existing planning and regulatory authority would be. Others wanted to know more about the regulations which the bill authorized DEP to promulgate. In short, it was often suggested that legislative action on the entire bill, as submitted, be postponed until next year, by which time more specific information on the program could be made available.

Coastal Recreation

A new planning report, Recreational Demand, Opportunities and Limitations in Connecticut's Coastal Area, has recently been published by Connecticut's Coastal Area Management Program. The report proposes a recreational planning process for the state's shoreline that aims to upgrade coastal recreation opportunities in Connecticut. It was prepared in response to federal requirements for an approvable coastal management program that would qualify for continued federal funding assistance.

The report's findings and recommendations are based on an extensive inventory and analysis of the coast's physical resources and existing recreational facilities. It includes a statistical breakdown of beach front usage and ownership as well as charts describing existing commercial marinas, public boating and public beach facilities.

In addition, the study reviews existing and complementary policy recommendations for coastal recreation such as those contained in the Statewide Comprehensive Outdoor Recreation Plan for Connecticut (SCORP), the Long Island Sound Regional Study and the Long Island Sound Heritage Bill.

Some of the report's findings and conclusions concerning coastal recreation resources and opportunities in Connecticut are listed below.

* According to SCORP estimates, the expressed demand for coastal swimming and boating activities currently exceeds the available supply.

* Though sandy beaches are the most demanded coastal resource, they are neither abundant nor evenly distributed in Connecticut. Of Connecticut's coastal frontage, sandy beach accounts for only 18% of the coastline. An analysis of CAM coastal resource maps reveals that as many as one-third of the beaches are less than 1500 feet in length, thus affording only limited recreational opportunities.

* General indication is that many private beaches are currently heavily used and may not individually provide additional user opportunities even if they were acquired through public funds. In addition, many of these private "beaches" are quite small and are non-contiguous making them difficult to manage for public recreation should the opportunity for acquisition occur.

* Connecticut has no federally owned recreational lands. The burden for development and maintenance of public recreational areas falls solely on the state and municipal governments.

* Opportunities for increasing recreational facilities along the coast do exist. The greatest limiting factor to the development of new recreational areas is lack of available funding.

In planning for increased shorefront opportunities, areas of potential recreational use are identified and recommended for study as potential or improved recreational sites. Topping the list of recommendations, for example, is the development of the Silver Sands State Park area in the town of Milford. Currently underdeveloped due to onsite pollution problems, Silver Sands offers approximately 293 acres, 3100 feet of beach frontage and an ideal location midway between two existing state beaches in a heavily populated area where demand for public recreational opportunities is high. The report urges the state to undertake the necessary steps to curb the sources of water pollution and to resolve ownership conflicts which are making the development of the area infeasible.

Another item starred for priority consideration is the development of additional public boat launching sites along the coast to increase recreational access to Long Island Sound waters for the boating public.

In conjunction with the proposed planning process, the report urges that continued attention must be given to improvement of water quality in all coastal areas if enhancement of existing recreational opportunities is to succeed. Several former recreational beaches are not being used to their full potential due largely to deterioration in water quality. In addition, other recreational opportunities in urban harbors are significantly limited by water quality.

For coastal recreation to be considered and balanced in light of statewide recreation demands, the report recommends that the proposed shorefront planning process be implemented as an integral part of Connecticut's existing Statewide Comprehensive Outdoor Recreation Planning process. The SCORP is currently being updated by DEP's Planning and Coordination Unit.

Copies of report can be obtained from CAM at address above or phone 566-7404.

Trailside Botanizing

by G. Winston Carter

There are a substantial number of low-growing plants that remain green throughout the year and are therefore referred to as evergreens. Indian Pipe on the other hand holds the distinction of being a "never-green." This interesting plant of the forest floor never produces its own chlorophyll and yet it is considered a flowering plant.

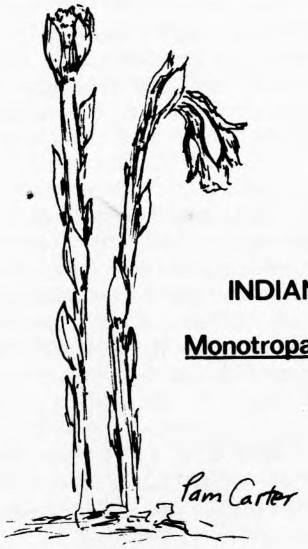
The Indian Pipe produces an attractive white to pinkish flower sometime between June and September. After the blossoming period, it tends to lose its small rudimentary leaves which are scattered along the stem. The whole plant becomes dry and turns inky black. Its fruit develops as an urn-shaped capsule which is formed on top of what now appears to be a thin wire-like stem. In this form the Indian Pipe persists throughout the winter.

How does this plant manage to survive without an ability to manufacture its own food? Apparently there have been differences of opinion about this for quite some time. Previously, it was believed that the Indian Pipe was dependent on dead and decaying vegetation (saprophytic) or that it was a parasite.

Now it appears that the mystery has been solved. Certain fungi (mycorrhizae) gather food and inject it into the root cells of the Indian Pipe. The fungi profit by this arrangement, because they are able to stake out a claim to a piece of the forest floor with the help of the Indian Pipe. Thus, this fascinating interrelationship benefits both parties.

Monotropa is Greek for "one turn." This refers to the flower stem which turns to one side. Uniflora means that each plant stalk produces one flower.

At one time an extract from this plant was used to treat eye irritations.



INDIAN PIPE

Monotropa uniflora

DEPcitizens' bulletin

State of Connecticut
Department of Environmental Protection
State Office Building
Hartford, Connecticut 06115

Commissioner: Stanley J. Pac
Director Info & Ed: Greg Sharp
Editor: Margot Callahan
Layout: Rosemary Gutbrod
Typist: Linda Mrowka
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